



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

09/812,108

03/19/2001

Venkata A. Bhagavatula

SP00-095

9668

22928

7590

03/06/2003

CORNING INCORPORATED

SP-TI-3-1

CORNING, NY 14831

EXAMINER

WEBB, BRIAN SCOTT

ART UNIT

PAPER NUMBER

2839

DATE MAILED: 03/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/812,108

Applicant(s)

BHAGAVATULA ET AL.

Examiner

Brian S. Webb

Art Unit

2839

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 18-41 is/are rejected.
- 7) ☒ Claim(s) 14-17 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 March 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6,8,9. 6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: reference 46. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities: the applicant's prescribed changes to the Specification in their preliminary amendment dated November 16, 2001, specifically the changes for page 4, line 24, page 13, line 24, and page 13, line 24. The required changes were not possible at the specified locations. The examiner believes that the intended locations were page 3, line 24, page 14, line 5, and page 14, line 6, respectively.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 18, 19, and 35 are rejected under 35 U.S.C. 102(b) as being anticipated by Konno et al (US 5,293,438).

Konno et al discloses, in figures 1a-30, an optical waveguide lens for collimating or focusing a lightbeam comprising:

- an optical waveguide (8)
- a core in said optical waveguide fabricated from glass (column 8, lines 64-67)
- said core having a softening point (inherent)
- a cladding on said optical waveguide
- an axis on said optical waveguide (inherent)
- a lens member (7) connected to and extending from said optical waveguide
- said lens member being fabricated from glass (column 8, lines 58-60)
- said lens member having a softening point less than the softening point of the core
- a generally spherical lens portion (10) on said lens member
- a generally uniform refractive index in said lens member (column 8, lines 27-35)
- a ferrule (9)
- a method of forming said lens member that includes retracting the ferrule

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2839

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-13, 20, 21, 25-34, and 36-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konno et al in view of Miller et al (US 5,967,653).

Konno et al discloses the limitations of claims 18, 19, and 35 as shown above.

Konno et al further discloses a an optical waveguide lens for collimating or focusing a lightbeam comprising:

- said lens member being formed from a generally homogenous glass (column 8, lines 27-35)
- a throat portion on said lens member
- a single mode optical fiber having a diameter of 125 microns (column 9, lines 7-25)
- birefringent plates (14)
- optical devices using said optical waveguide lens such as optical switches, optical merging/branching filters, optical isolators, and optical couplers (column 1, lines 10-20)
- a mode field diameter greater than 500 microns and between 200 and 800 microns at the beam waist (column 15, line 30 to column 16, line 55)

Konno et al fails to disclose the lens being formed from borosilicate glass or 4 wt percent borosilicate glass, a throat portion on said lens member having a diameter greater than the waveguide, greater than 135 and 200 microns, and greater than 1.5 times the diameter of the waveguide, the optical waveguide lens assembly being used

with a pump multiplexer having multiple input fibers into a single output fiber, and forming the lens member separately.

Miller et al teaches, in figures 1-6, an optical waveguide lens using borosilicate glass. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select borosilicate glass as taught by Miller et al to use with Konno et al, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the lens from 4 wt percent borosilicate glass, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In regards to the claimed limitations of a throat portion on said lens member having a diameter greater than the waveguide, greater than 135 and 200 microns, and greater than 1.5 times the diameter of the waveguide, it would have been an obvious matter of design choice to make the lens blank and lens member disclosed by Konno et al larger, since such a modification would have involved a mere change in the size or shape of a component. A change in size or shape is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

Official notice is taken that pump multiplexers having multiple input fibers into a single output fiber is well known in the art of optical waveguide lenses. It would have

Art Unit: 2839

been obvious to one of ordinary skill in the art at the time the invention was made to use the optical waveguide lens disclosed by Konno et al with a pump multiplexer. The motivation being that pump multiplexers and the optical switches, optical merging/branching filters, optical isolators, and optical couplers disclosed by Konno et al are art-recognized equivalents.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the lens member disclosed by Konno et al separately from the optical waveguide, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179.

7. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Konno et al in view of Pan (US 5,551,968).

Konno et al discloses the limitations of claims 18, 19, and 35 as shown above. Konno et al further discloses a method for forming an optical waveguide lens for collimating or focusing a lightbeam comprising:

- providing a lens blank as part of said lens member
- attaching said lens blank to said optical waveguide
- forming a throat portion on said lens member
- forming said spherical portion by heating said lens blank

Konno et al fails to disclose applying tension to the lens blank to form a tapered distal end. Pan (US 5,551,968) teaches, in figures 1-5, the method of attaching a lens blank to an optical waveguide and then heating and drawing said lens blank to form a

tapered end. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the method of forming tapered ends taught by Pan with the method of forming an optical waveguide lens disclosed by Konno et al. The motivation being the reduced cost of production as taught by Pan (column 4, lines 55-62).

8. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Konno et al and Pan as applied to claim 22 above, and further in view of Miller et al.

Konno et al and Pan fail to disclose the lens being formed from borosilicate glass or 4 wt percent borosilicate glass.

Miller et al teaches, in figures 1-6, an optical waveguide lens using borosilicate glass. It would have been obvious to one having ordinary skill in the art at the time the invention was made to select borosilicate glass as taught by Miller et al to use with Konno et al and Pan, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Again, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form the lens from 4 wt percent borosilicate glass, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Allowable Subject Matter

9. Claims 14-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: the prior art of record relied upon by the examiner does not disclose or teach an optical waveguide lens with a throat portion and spherical lens portion, wherein there is a first and a second waveguide connected to said throat portion.

Conclusion

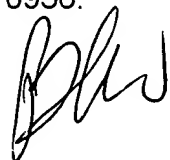
11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Buhner (US 4,671,613) discloses a multiplexer that uses a birefringent plate to combine multiple lensed fibers into a single lensed output fiber. Funabashi et al (US 5,617,495) discloses a lensed optical fiber that utilized borosilicate glass. Payne et al (US 4,497,536) and Borsuk et al disclose lensed optical connectors that have a spherical lens formed and then retracted into a ferrule. Lynch et al (US 4,844,580) discloses a lensed optical fiber wherein the throat of the lens is greater in diameter than the optical waveguide.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian S. Webb whose telephone number is (703) 308-6080. The examiner can normally be reached on 7: 30-6, Mon - Thurs.

Art Unit: 2839

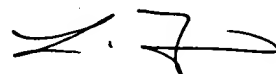
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynn D. Field can be reached on (703) 308-2710. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



BSW

February 26, 2003



LYNN FIELD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800